



# NASA ADVISORY COUNCIL COMMERCIAL SPACE COMMITTEE

Robert Cabana  
Director, Kennedy Space Center

# KSC's VISION AND MISSION



- **Vision:** KSC is the world's preeminent launch complex for government and commercial space access, enabling the world to explore and work in space
- **Mission:** KSC safely manages, develops, integrates, and sustains space systems through partnerships that enable innovative, diverse access to space and inspires the Nation's future explorers' capabilities to make accessing space less costly and more routine

# KSC CORE COMPETENCIES



- Acquisition and management of launch services and commercial crew development
- Launch vehicle and spacecraft processing, launching, landing and recovery, operations, and sustaining
- Payload and flight science experiment processing, integration and testing
- Designing, developing, operating, sustaining flight and ground systems, and supporting infrastructure
- Development, test and demonstration of advanced flight systems and transformational technologies
- Developing technology to advance exploration and space systems

# GOVERNMENT SYSTEMS



**Orion Multi-Purpose  
Crew Vehicle**



**Space Launch  
System (SLS)  
heavy-lift booster**





# POTENTIAL COMMERCIAL SYSTEMS



- Existing Evolved Expendable Launch Vehicles (EELV) and heavy-lift derivatives – Delta IV and Atlas V
- Falcon launch vehicles (new and evolving)
- Suborbital Reusable Launch Vehicles (RLVs)
- Horizontally-launched systems, with a very large aircraft as the first stage
- New Technology Vehicles



# TECHNOLOGY CAPABILITIES



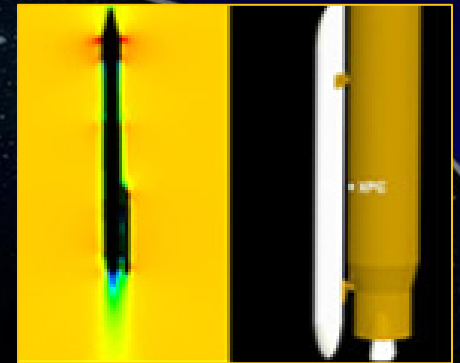
**CRYOTE Liquid  
Storage & Transfer**



**Solar Field**



**RESOLVE**

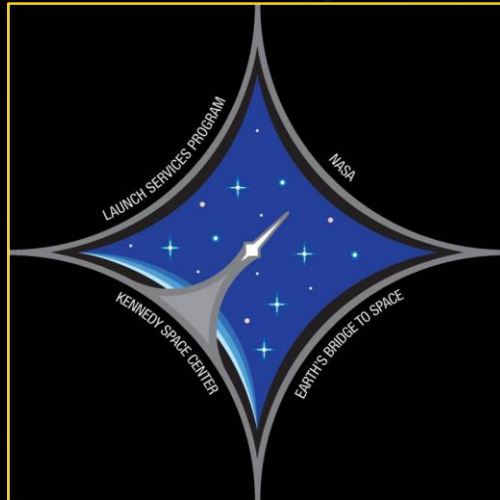


**SPHERES Propellant  
Slosh Testbed**



**VEGGIE Growth Unit**

# KSC PROGRAMS



**Launch Services  
Program (LSP)**



**Commercial  
Crew Program  
(CCP)**

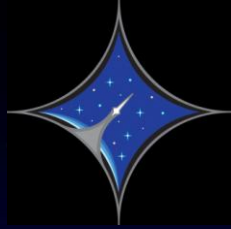


**Ground Systems  
Development & Operations  
Program (GSDO)**





# LAUNCH SERVICES PROGRAM



**Vision:** To be the recognized leader in launch services

**Mission:** Leadership and expertise in providing on-orbit, on-time, on-cost launch services

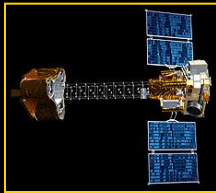
## **LSP Goals:**

- Goal 1: Maximize Mission Success
- Goal 2: Assure Long-Term Launch Services
- **Goal 3: Promote Evolution of a US Commercial Space Launch Market**
- Goal 4: Continually Enhance LSP's Core Capabilities



# LAUNCH SERVICES PROGRAM

2012



**NuStar - Nuclear Spectroscopic Telescope Array**



**RBSP – Radiation Belt Solar Probes**

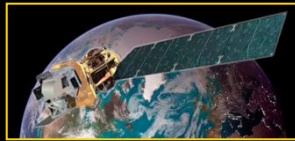


**IRIS – Interface Region Imaging Spectrograph**

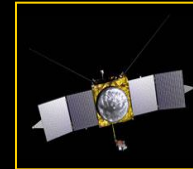


**TDRS K – Tracking and Data Relay System**

2013



**LDCM – Landsat Data Continuity Mission**



**MAVEN - Mars Atmosphere and Volatile Evolution**

2014



**Jason-3**



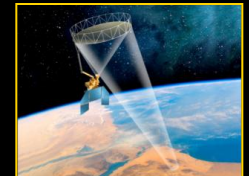
**TDRS L – Tracking and Data Relay System**



**OCO 2 - Orbiting Carbon Observatory**



**MMS – Magnetospheric MultiScale**



**SMAP – Soil Moisture Active Passive**



# COMMERCIAL CREW PROGRAM (CCP)



- Program office at KSC
- Deputy Program Manager at JSC
- Initial capability in 2017



# CCP PARTNERS



***Blue Origin***



***Boeing***



***Sierra Nevada***



***SpaceX***



***ATK***



***Excalibur Almaz***



***ULA***





# GROUND SYSTEMS DEVELOPMENT AND OPERATIONS (GSDO)



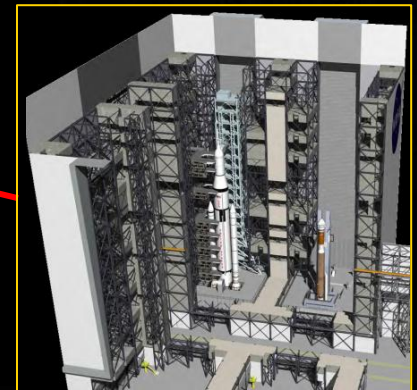
**Clean pad  
Flexible Launch  
Capability**



**Shuttle pad  
configuration**



**Mobile Launcher**



**Multi-use  
Integration (VAB)**

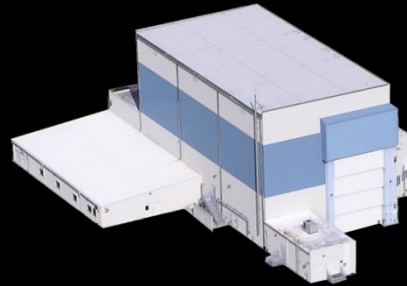




# GSDO PLANNED PROJECT INVESTMENTS



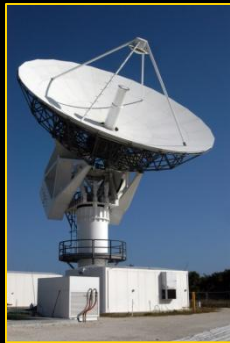
**Convert SLF for horizontal launch and landing**



**Convert MPPF for MPCV and commercial use**



**Convert CxP Mobile Launcher for SLS**



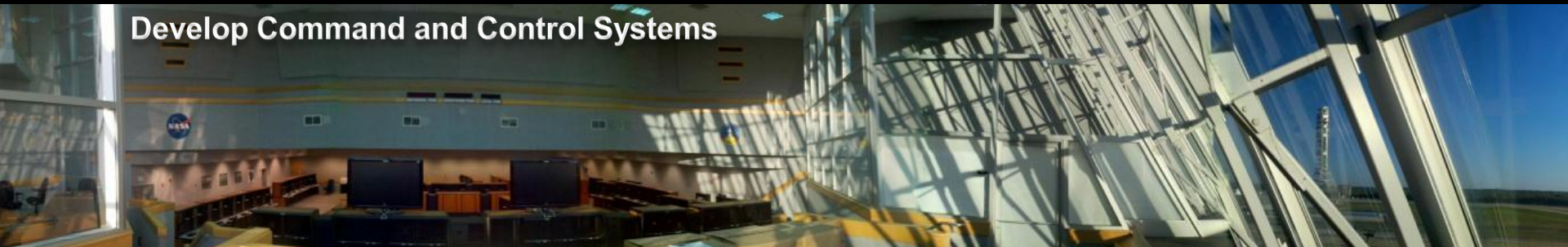
**Modernize Range Infrastructure**



**Conversion of LC-39 to support SLS and commercial use**



**Develop Command and Control Systems**



# KSC STRATEGIC POSITION STATEMENT

*No place else in the world has the combination of experience, geographic advantages and purpose-built infrastructure that we do at Kennedy Space Center.*



# CENTER PLANNING & DEVELOPMENT OFFICE

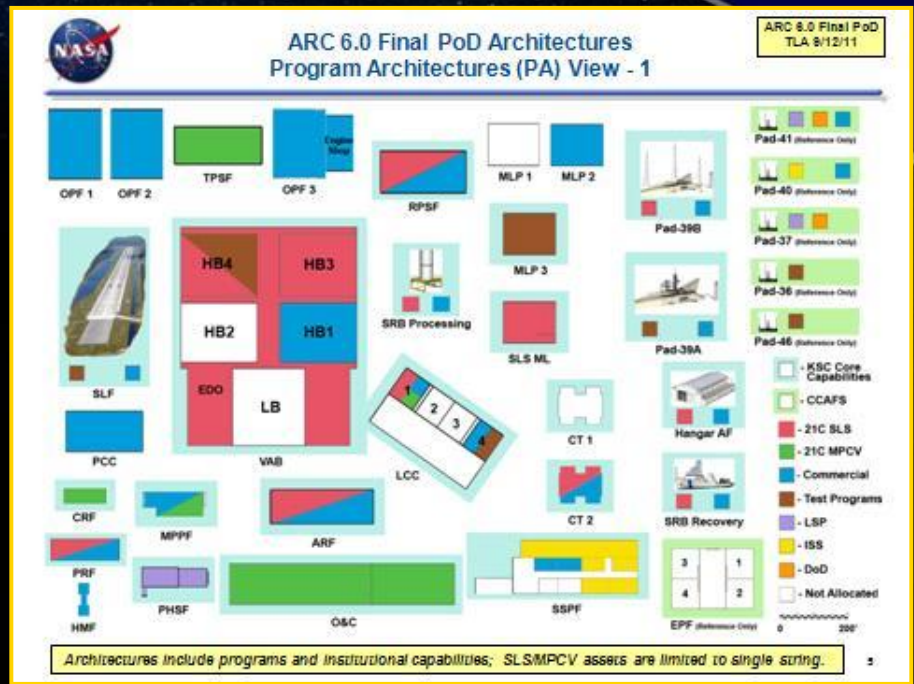
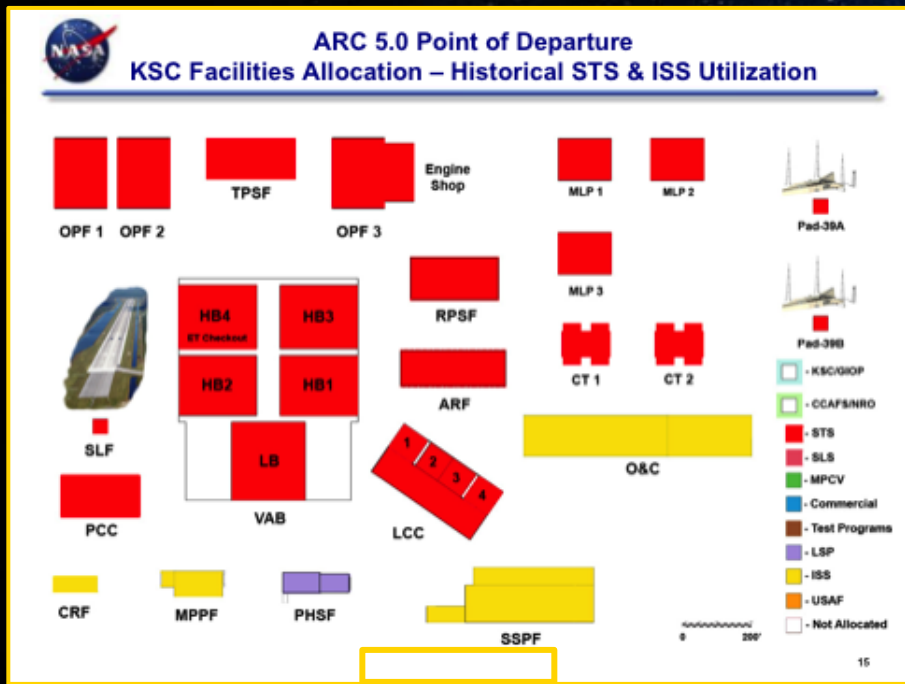


KSC's "Front Door" to engage new business focusing on:

- Master plan for KSC infrastructure, land use, and real estate strategies
- Commercial space transportation and services
- Retention of highly skilled aerospace workers and facility assets



# REUTILIZATION OF FACILITIES



Historical STS & ISS Utilization



Recommended Program Allocation



# ORBITER PROCESSING FACILITY 3 AGREEMENT



- 15 year use permit agreement
- Operations and maintenance savings of approximately \$9.1 million to KSC
- Space Florida has an agreement to lease OPF 3 to Boeing





# EXPLORATION PARK





# AVAILABLE FACILITIES AND ASSETS



## Launch Complex 39 Area



**Mobile  
Launcher**

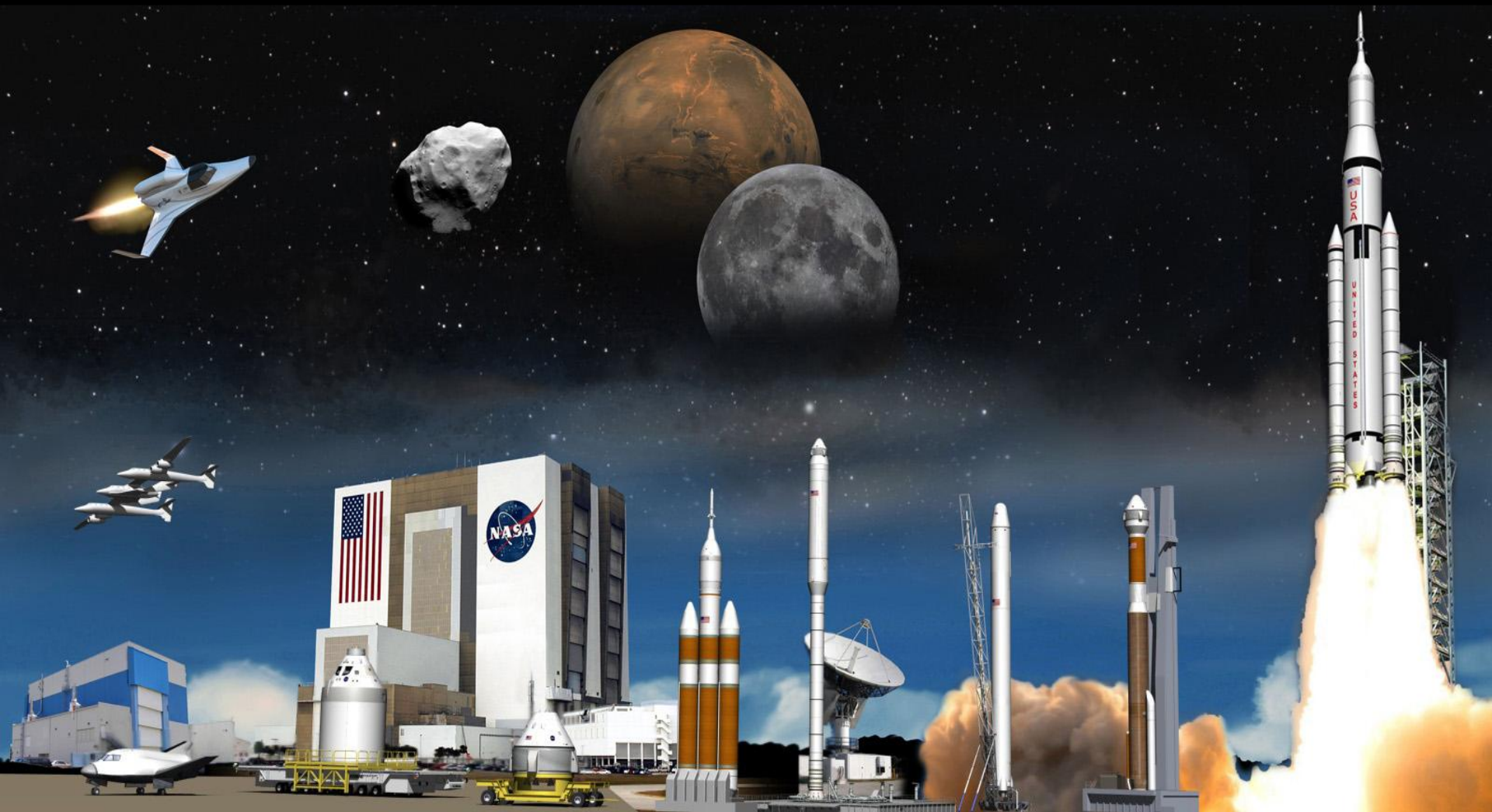


**Mobile Launch  
Platforms**



**Industrial Area**









# QUESTIONS?